

WHAT IS CLAIMED IS:

12. An optical probe for the non-invasive measurement of characteristics of a medium, said optical probe comprising:

an emitter which transmits optical radiation;

5 a detector configured to detect said optical radiation after attenuation through said medium;

a flexible circuit assembly extending between said emitter and said detector, said flexible circuit assembly having electrical circuit paths for said detector and said emitter; and

10 a cushion positioned between said detector and said emitter along said flexible circuit.

13. The optical probe of Claim 12, further comprising a flexible backing supporting said flex circuit.

14. The optical probe of Claim 12, said cushion being formed in said  
15 flexible circuit between said emitter and said detector so that said cushion abuts a patient's fingertip when said optical probe is attached to said fingertip.

15. The optical probe of Claim 12, further comprising an optical cavity containing said detector.

19. An optical probe for the non-invasive measurement of characteristics  
20 of a medium, said optical probe comprising:

an emitter which transmits optical radiation;

a detector configured to detect said optical radiation;

a flexible circuit assembly extending between said emitter and said  
detector; and

25 a substrate which forms a surface of said flex circuit assembly, said substrate constructed to have a V-configuration, said emitter and said detector positioned on opposite branches of said V-configuration.

20. The optical probe as defined in Claim 19, flexible backing sized to affix  
to a member of a newborn baby.

30 21. the optical probe of Claim 20, wherein said member is a foot.